

PATENT

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Karl KOCH ET AL - 1 PCT
SERIAL NO.: 10/560,350 FILED: JANUARY 18, 2006
PCT NO.: PCT/EP2004/006306 FILED: JUNE 11, 2004
TITLE: METHOD FOR THE PRODUCTION OF A CORE SAND AND/OR
MOLDING SAND FOR CASTING PURPOSES

SUBMISSION OF INTERNATIONAL PRELIMINARY REPORT

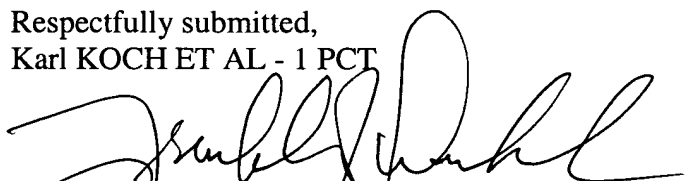
MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Enclosed, please find PTO Form PCT/IB/373 and Form PCT/ISA/237 (International Preliminary Report On Patentability).

It is respectfully requested that these papers be placed into the application file.


Respectfully submitted,
Karl KOCH ET AL - 1 PCT


Allison C. Collard, Reg. No. 22,532
Edward R. Freedman, Reg. No. 26,048
Frederick J. Dorchak, Reg. No. 29,298
Attorneys for Applicants

COLLARD & ROE, P.C.
1077 Northern Boulevard
Roslyn, New York 11576
(516) 365-9802
FJD:rd

Enclosures.: PTO Form PCT/IB/373 and Form PCT/ISA/237

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: MAIL STOP Amendment, COMMISSIONER FOR PATENTS, P.O. Box 1450, Alexandria, VA 22313-1450, on June 2, 2006.


Kelly Espitia

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference 98 874/M/nu	FOR FURTHER ACTION	See item 4 below
International application No. PCT/EP2004/006306	International filing date (<i>day/month/year</i>) 11 June 2004 (11.06.2004)	Priority date (<i>day/month/year</i>) 12 June 2003 (12.06.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant S & B INDUSTRIAL MINERALS GMBH		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).
2. This REPORT consists of a total of 10 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.
3. This report contains indications relating to the following items:

<input checked="" type="checkbox"/> Box No. I	Basis of the report
<input checked="" type="checkbox"/> Box No. II	Priority
<input checked="" type="checkbox"/> Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/> Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/> Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/> Box No. VI	Certain documents cited
<input type="checkbox"/> Box No. VII	Certain defects in the international application
<input type="checkbox"/> Box No. VIII	Certain observations on the international application
4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 740 14 35	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;">Date of issuance of this report 01 May 2006 (01.05.2006)</td> </tr> <tr> <td style="padding: 5px;">Authorized officer <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Ellen Moyse</div></td> </tr> <tr> <td style="padding: 5px;">Telephone No. +41 22 338 89 75</td> </tr> </table>	Date of issuance of this report 01 May 2006 (01.05.2006)	Authorized officer <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Ellen Moyse</div>	Telephone No. +41 22 338 89 75
Date of issuance of this report 01 May 2006 (01.05.2006)				
Authorized officer <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Ellen Moyse</div>				
Telephone No. +41 22 338 89 75				

PATENT COOPERATION TREATY

Translation

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing
(day/month/year)

Applicant's or agent's file reference

98 874/M/nu

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/EP2004/006306

International filing date (day/month/year)

11.06.2004

Priority date (day/month/year)

12.06.2003

International Patent Classification (IPC) or both national classification and IPC

Applicant

S & B INDUSTRIAL MINERALS GMBH

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2004/006306

Box No. I

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language
_____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2004/006306

Box No. II

Priority

1. ☒ The following document has not yet been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date in the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2004/006306

Box No. III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application

☒ claims Nos. 4-7

because:

☐ the said international application, or the said claims Nos. _____
relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 4-7
are so unclear that no meaningful opinion could be formed (*specify*):

See supplemental sheet

☐ the claims, or said claims Nos. _____ are so inadequately supported
by the description that no meaningful opinion could be formed.

☐ no international search report has been established for said claims Nos. _____

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form

☐ has not been furnished

☐ does not comply with the standard

the computer readable form

☐ has not been furnished

☐ does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-bis of the Administrative Instructions.

☐ See Supplemental Box for further details.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2004/006306

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>10</u>	YES
	Claims	<u>1-3, 8-9</u>	NO
Inventive step (IS)	Claims	<u></u>	YES
	Claims	<u>1-3, 8-10</u>	NO
Industrial applicability (IA)	Claims	<u>1-10</u>	YES
	Claims	<u></u>	NO

2. Citations and explanations:

Setting aside the clarity defects (cf. point 3), the following opinion is provided with regard to novelty and inventive step:

1 The present opinion makes reference to the following documents:

D1: US 2 828 214 A (OLSON ERWIN A *ET AL.*) 25 March 1958 (1958-03-25)

D2: DE 196 09 539 A (ASHLAND SUEDCHEMIE KERNFEST) 18 September 1997 (1997-09-18)

D3: GB 1 444 280 A (SHELL INT RESEARCH) 28 July 1976 (1976-07-28)

2 The present application does not meet the requirements of PCT Article 33(1), because the subject matter of independent claim 1 and of dependent claims 2, 3, 8 and 9 is not novel with the meaning of PCT Article 33(2).

Document D1 discloses (the references between parentheses relate to said document) compositions for casting cores and moulds, consisting of sand, binders and additives which are mixed (column 1,

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2004/006306

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

lines 1-24).

The additives contain cellulose, milled flax, which after milling preferably has a particle size of 50-500 μm (column 3, lines 21-34).

Particle size distribution for three examples A, B, C are disclosed in the table in column 4. Example C satisfies the conditions of claims 1 and 2.

Example II in column 5 discloses a quartz sand with organic additive (milled flax) and inorganic additive (bentonite) as well as water, which are mixed for production. In the process, the grains of sand are inevitably sheathed by the additive. Flax also appears to meet the conditions of claims 5 and 7.

Therefore, D1 discloses both the features of claim 1 and the features of dependent claims 2, 3, 8 and 9.

- 3 The present application does not meet the requirements of PCT Article 33(1), because the subject matter of claim 1 does not involve an inventive step within the meaning of PCT Article 33(3).

Document D2 is considered by the applicant to be the closest prior art to the subject matter of claim 1. It discloses all the features of the preamble of claim 1.

No details are provided as to the process of producing the additive or its grain sizes.

According to D3, milled bitumen with grain sizes of

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2004/006306

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

from 0.02-1.0 mm is used as organic additive (page 2, lines 60-68). The sand is quartz sand (claim 3). The milling and the resulting grain size for the moulding sand additive is regarded as conventional.

Therefore, a person skilled in the art would combine the features disclosed in D2 and D3 and thereby arrive at the subject matter of claim 1, without thereby being inventive.

Therefore, the subject matter of independent claim 1 cannot be considered inventive (PCT Article 33(3)).

Dependent claims 2, 3, 8-10 do not appear to contain any features which, in combination with the features of any claim to which they refer back, meet the PCT requirements for inventive step.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Box III

1 The application does not meet the requirements of PCT Article 6, because claims 1, 4 and 6 are not clear.

1.1 Claim 1 relates to a process for producing a moulding/core sand. The only process features mentioned are:

- moulding base material is mixed with additive grains.
- additive grains are milled or pelletized, or the aggregate grains formed are pelletized or milled.

The numerous "and/or" links means that the continuous production process is not clearly defined, for example because it is not apparent, for example when producing aggregate grains, whether the additive grains are also milled. The order in which the features are carried out is not evident, because the characterizing clause refers simultaneously to obviously preceding features (milling of the additive grains) and subsequent features (pelletizing the aggregate grains).

Therefore, the scope of protection of **claim 1** is not clearly defined.

1.2 Claim 1 relates to a production process. The features of dependent claims 4-7 are regarded as functional features. However, it is not clear from the wording whether the functional properties relate

Supplemental Box

to the additive as raw material or starting material or occur in the moulding sand as the product produced after the process; this applies in particular in the case of agglomerate grain production.

Therefore, **claims 4-7** do not comply with PCT Article 6.

2. There are also objections pursuant to PCT Article 5 relating to the feasibility of execution of the claimed invention within the scope of **claims 4-7**.

The PCT guidelines (PG-II 5.46-48) explain that although a reasonable number of attempts and failed attempts are permissible, a person skilled in the art, based on the disclosure of the application, must be able to carry out the invention over the entire range claimed without "excessive experimentation" and without unacceptably large numbers of attempts. The scope of the claims is of relevance in this context, since a person skilled in the art, based on the content of disclosure of the application, must be able to carry out the invention over the entire claimed range. The possibility of selecting from organic components for the additive having at least one of the properties mentioned in claims 4-7, however, appears almost infinitely wide, and consequently the number of attempts must be considered unacceptable.

Therefore, the objection under PCT Article 5 is justified in this case.